Beaver Creek TMDL Meeting Questions
February 11, 2004

Is there only one discharge into Beaver Creek?

For bacteria, yes. There is a private residence that has a permit. The city has an MS4 permit (storm water).

Could you tell me exactly where the monitoring station you are talking about is?

River mile 15.27. It is at the state line near Dove Radiator shop.

What does the zero on the sampling data mean? - Not detected?

Could mean that the sample failed. Could also mean that a more through test was run on this set. I'm not really sure.

On your graph are we looking at a peak every time in Sept., if so, what is that saying?

Sept. is winding down the summer when there could have been drought. What I'm trying to get across is that we monitored during several different times so that we could get an overall picture of what was going on in the stream.

Are birds, even though small a big contributor?

Geese and ducks were represented in the model. Some animals although small may have high bacteria concentrations.

What about bats?

Yes. We received information from VHCC on the bat population in the area. They could possibly be a contributor.

Are these monitoring stations we are looking at continuous monitoring stations?

No.

Wildlife seems to be a high contributor, How do you control wildlife?

We don't address wildlife at first. We try reducing every where else first. If that doesn't work, then we look at addressing the wildlife. We can post signs for people not to feed the wildlife so it congregates in other places. We can also look at lowering the levels for this creek if everything else fails.

Are there options for developing wetlands/filters?

That is something we would look at during the implementation plan. That would be a good option.

Is there a time frame we have to clean the creek?

No. We just need to do it.

Was there source tracking done?

Yes. Near the state line.

Was there human in the sample?

Yes. All types showed up in the samples.

There is a sewer line in the creek bed. If it is leaking that could be a contributor.

On table 33 when you did the D.O. study there is a difference in the conductivity levels. Any idea what caused that?

No idea. Could have been a pulse or something running through the water when the sample was taken.

What are you seeing with conductivity? The type of industries around could be producing that also the amount of salt on the roads during the winter that washes off into the stream.

Conductivity is an indicator of a lot of bad stuff getting into the water. The sediment coming into the creek could be carrying metals and salts. But, here it is not severe enough that it is causing the type of problems we are seeing.

Is it effecting Benthics?

No. It is not. Something you also need to realize is that a lot of times it is higher in limestone areas. Salt use is also limited to winter.

Have you seen a seasonal trend? Is it going up in the winter?

We haven't measured it that way. That is something interesting to look at though.

If conductivity is higher because of erosion, then fixing the sediment problem will help that out.

There is a fair amount of nitrogen moving through the system? Is there any relation between nitrogen and fecal?

There are some high levels of nitrogen, but I think that problem will be solved while working on the bacteria problem. There is a positive relationship between them. By controlling bacteria there should be a reduction.

For people with septic and sewage problems that can't afford to get them fixed, how do you handle those situations? Do you just toss them out of their homes?

We try to help. There is money, loans, and other programs available for aid. Cost share is between 50 - 75%. Sometimes if the household still can't afford it, TVA or people, Inc. help out. Some have gotten 100%.

March 9, 2004

Sue Garrett
920 Vermont Avenue
Bristol, Virginia 24201-4611

Re: Bristol Virginia Utilities response to Sewer Overflow Report for Newport Avenue and Vermont Avenue

Dear Ms. Garrett,

As you know, the Virginia Department of Environmental Quality contracted with Tetratech last year to develop bacteria and benthic Total Maximum Daily Load reports for Beaver Creek. Our early public meeting was held last summer and after that meeting, you provided the Virginia Department of Environmental Quality with information about sewer manhole overflows within the Beaver Creek watershed.

DEQ forwarded a copy of your letter to the Bristol Virginia Utilities (BVU) staff for information and comment. In February, BVU responded with a letter regarding the history and current studies and construction for the sewer collector lines. I am enclosing a copy of this letter for your information. Mr. Bowling, Supervisor of Water & Wastewater Engineering for BVU, indicates in the letter that inflow and infiltration studies are planned for the Beaver Creek drainage area.

Since, our initial public meeting, Tetratech has produced a draft report recommending reductions for bacteria contamination in Beaver Creek. One of the elements that the draft report addresses is urban contributions with a recommendation that they be reduced by 100%. The urban component includes sewer overflows. This bacteria TMDL report can be viewed by visiting the DEQ website at www.deq.state.va.us and searching for TMDL. The public comment period for both TMDL studies, benthic and bacteria, ends on March 12, 2004. If you have comments but need additional time to review and respond, please contact me, either write to DEQ - P. O. Box 1688, Abingdon Virginia 24212-1688, call - (276) 676-4807 or email - ntnorton@deq.state.va.us.

Thank you for your interest in water quality.

Sincerely,

Nancy T. Norton, P.E.
TMDL Coordinator, Southwest Regional Office

Norton,Nancy
From: CJewell@aol.com
Sent: Sunday, March 14, 2004 7:22 PM
To: Norton,Nancy
Cc: CJewell@aol.com
Subject: TMDL Benthic
Dear Nancy Norton:

Below are some comments to the Benthic TMDL. Let me know if you need hardcopies or if the e-mails will do. I don't know the state rules for public comments. If clarification is needed, please let me know.

Thanks for the opportunity to comment

Catherine Jewell
502 Lee Street
Bristol, VA 24201
276-466-5996
cjewell@aol.com

Comments on:
Benthic TMDL Development for Beaver Creek

Executive Summary
"Waershed" to **watershed**

"Virginia 305(b)/303(d) guidance states that support of the aquatic life beneficial use is determined by the assessment of conventional pollutants (dissolved oxygen, pH, and temperature); toxic pollutants in the water column, fish tissue and sediments; and biological evaluation of benthic community data (VADEQ 1997)."
Need to state if this is administrative code or where this comes from since it is the first reference to it.
When did DO, temp and pH become conventional pollutants? Should phosphorus and nitrogen be in here?

" In general, the stream reach that a biomonitoring station represents is classified as impaired if the EPA's Rapid Bioassessment Protocol (RBP) ranking is either moderately or severely impaired." **Can you clarify this sentence, it reads like if the ranking is impaired.**

Define TMDL where first used in this summary.

Sources of Sediment
"Sediment sources can be divided into point and **non point** sources" **(nonpoint).**
"There are currently no individually permitted facilities in the Beaver Creek watershed" **Remove sentence not needed in the summary - but if use rephrase it.**

"VPDES" **Define this**

"These minor discharges are not expected" 2 metric tons per day for the city of Bristol directly into a creek seems a bit more than minor. **I question if you need all of this stuff and table 1 in an executive summary, espc if it is minor or insignificant**.

Table 1. **Define MGD under table. Also may want to stick with either metric tons/yr or lb/yr**

Table 2. **This table would be more self explanatory if the actual load was provided, then % reduction, then sediment load allocation. If you do this then reference the table under Existing conditions. .**
Specific Point source allocations could be a footnote under table (e.g., City of Bristol (MS4)= X and all other permitted facilities=Y)

"Also, sediment loads from point sources were not reduced because these facilities are currently meeting their pollutant discharge limits and other permit requirements and because these loads were insignificant as compared with other sources." I**nsignificant ?? After you make the sediment % reductions they now account for 31% of the load.**

1.1.1 TMDL Definition and Regulatory Information
" (TMDLs) for waterbodies that are exceeding water quality standards." **Exceeding generally is used to mean going above, surpassing the standards - use violating or something else**

1.1.2 Impairment Listing
Under this section a general statement of the characteristics of Beaver creek and the watershed would be nice. For example, it would be nice to know the acres of open water in this impaired section or the watershed; if it is or is not a source of drinking water for the area or used for irrigation, and if it receives waste from sewer treatment facility from either WA CO or City of Bristol or industrial sources, and storm water drainage. Also the feeder streams into Beaver Creek should be mentioned.

1.1.3 Watershed Location
"entire Beaver Creek **waershed**" **watershed**

1.2 Designated Uses and Applicable Water Quality Standards
"the propagation and growth of a balanced indigenous population of aquatic life, including **ame f**ish" **Game**

"conventional pollutants (dissolved oxygen, pH, and temperature)" s**ince when are these classified as pollutants**

"In general, the stream reach that a biomonitoring station represents is classified as impaired if the RBP ranking is either moderately or severely impaired. As a result, Beaver Creek was listed as impaired due to violations of the general standard (aquatic life)." **Please clarify reads if ranking is impaired.**

2.1 Reference Watershed Approach
"According to Virginia's 2002 303(d) list, the probable causes of benthic impairment were attributed to non-point source pollution associated with intense agriculture in the upper portion of the watershed and urban development in the lower portion of the watershed" **The list stated the probable cause? Is this specific probable cause for the Beaver Creek watershed? If so state that..**

2.2.1 General Information
The Beaver Creek watershed extends from Washington County, Virginia into **Bristol County, Tennessee" Correct this**

2.2.3 Soils
Do not need "The following soil series descriptions are based on NRCS Official Soil Descriptions (1998-2002)." if only one series is described - but reference the source in the next sentence. Change: " They are located on nearly level to very steep uplands. Permeability is moderate. Slopes range from 0 to 60 percent." **to something like - Permeability is moderate and slopes range from level to very steep uplands (from 0 to 60%)**

March 16, 2004

Sue Garrett
920 Vermont Avenue
Bristol, Virginia 24201-4611

Re: Sewer Overflow Reports for Newport Avenue and Vermont Avenue

Dear Ms. Garrett,

Today, after our telephone conversation about the overflows you observed on August 8, 2003, I spoke with Mr. Bobby Doss at our office. He told me that Mr. John Bowling is the Bristol Virginia Utilities person that reports sewerage overflows to the Virginia Department of Environmental Quality. That means that Mr. Bowling is the person you need to contact each time you see an overflow. I also suggested you could contact our office as well. Mr. Bobby Doss with our office would be the person to contact. He tracks sewerage overflows from systems within southwest Virginia. Contact information for both individuals is provided for your use.

Mr. John Bowling, Supervisor of Water and Wastewater Engineering Bristol Virginia Utilities Board P. O. Box 8100 Bristol, Virginia 24203-8100 Telephone Number 276-645-8716	Mr. Bobby Doss Virginia Department of Environmental Quality Southwest Regional Office P. O. Box 1688 Abingdon, Virginia 24212-1688 Telephone Number 276-676-4848

I would encourage you to make the Bristol Virginia Utilities Board aware of overflows so that they have the best information to make decisions about future corrections to problems within the Bristol collector lines.

Thank you for your interest in water quality.

Sincerely,

Nancy T. Norton, P.E.
TMDL Coordinator, Southwest Regional Office

I don't know much about soils but the soil type states "well drained" and above says permeability is moderate.

From this I am concluding that there is only one soil type in this watershed, VA003 which is in hydrologic soil group B. What is group B?

2.2.4 Climate
"the Abingdon 3S ... is located approximately 15 miles to the **southwest" of what?**

2.2.5 Land Use
Significant changes in land use have occurred from the early 1990s, for example exit 10 to exit 5, highway extensions, farm lands into subdivision. I think this change may have an impact on the type of recommendations. If the only image available was the 1992 publication - then efforts should have been made to update the areas.

Table 2.1
Title of table and elsewhere need to specify VA only when referring to watershed. Also need to specify the date and source of information under the table

22,541 total acres vs 22,654 on p. 1-1
Table is messed up e.g.,
Read across from open water; pasture/ hay, row crops, quarries/transitional. Is water 819 acres or 42.9? Is pasture/hay 6,906 or 42.9 etc. recheck figures and percentages and change text were applicable.
The color index does not match up on the acrobat reader - I assume this is a problem with the imaging.

Fig 2..2 **needs source of maps and date**

2.26 **What is a low drainage density?**

Table 2.3 **From this table it looks like Beaver Creek averages moderately impaired and the reference watershed is slightly impaired not unimpaired.**

Figure 2.4 **I see only one monitoring station on this map and it is where in reference to the flow? Does this one station represents the biological conditions in the complete watershed. Change title to indicate station and not stations.**
.
3.2.3 Habitat Alteration
"Riparian areas perform many functions that are critical to the ecology of the streams that hey border. **Functional values include:" change to border, such as:**

3.3 Monitoring Stations
13 stations, 12 listed on table 3.1.Clarify "Three of these stations (6CBEV021.44, 6CBEV021.45, and 6CCLE002.89) were only monitored
in the 1970s (limited data) and were not included in this report. ALSO - check your numbering for these stations the last one 002.89 - may be a misprint.

Since there are only two biomonitoring stations, consider stating their location e.g., *"VADEQ maintains two biomonitoring stations on Beaver Creek. (6CBEV023.99 located downstream of Bristol Industrial Park at Rt. 625 and 6CBEV024.60 located upstream from the Industrial Park).

Table 3.1

6CBEV019.21 is this Beaverview drive? And is their a YMCA pool there?

6CBEV020.86 make corrections

BeavCrWQ6 recheck DEQ number
BeavCrWQ6 GMU WQ, Bio Beaver Cr@State Line (8th St.) (DEQ 6CBEV015.13

******Figures would be a lot clearer if you just included the stations from which you have data from in the key instead of all of the stations. Espc when it is in black and white.**

Conductivity (Specific Conductance)
"Conductivity data are presented in Figure 3.5. High conductivity values were recorded at all Beaver Creek stations. These high values are indicative of anthropogenic inputs to the stream. Station 6CBEV015.27 had the highest conductivity measurements." **I believe this is the first place that conductivity is mentioned. It was not mentioned under candidate causes 3.2 as a potential indicator to the presence of toxic pollutants or other stressors. There is no established criteria or reference for it in table 3.2. Or under this section (as with pH, DO, temp.) If VA doesn't have numeric criteria for it use EPA or other acceptable guidelines. Are these values something to be concerned about - if so explain better.**

BOD5
Does high phosphorus levels affect BOD5 readings?
"Therefore, BOD5 can serve as an index of the degree of organic pollution" and/ or nutrients ?.
"High BOD5 (insert > 3mg/L)measurements were recorded on several occasions at Beaver Creek stations" (> 3mg/L).
One might wonder why there were high BOD5 measurements when the DO is excellent, If "high BOD ...results in reduced DO"

Phosphorus
There is no established criteria or reference for it in table 3.2. If VA doesn't have numeric criteria for total phosphorus and orthophoshate then use EPA or other acceptable guidelines and explain not that several TP observations were above 0.2 mg/l (What does that mean) Drop the bit about explaining the high N:P ratios for the station and discuss it later.

Nitrogen
"Major sources of nitrogen **(insert to the watershed)** include municipal"
Don't know the significance of car exhaust to this watershed - but subsurface water in addition to surface runoff probably contribute to the loading.
You need to explain nitrate, nitrite, and nitrate+nitrite in this section.AND REWRITE THIS SECTION. There is no established criteria or reference for these in table 3.2. If VA doesn't have numeric criteria for nitrogen then use EPA or other acceptable guidelines and explain .WQ2 looks like it had the highest single nitrate not 17.15, but anyway what does it mean ?

"TKN data are presented in Figure 3.12." **THATS NICE BUT WHAT IS IT AND WHAT DOES TKN STAND FOR? Why is it important, what is the standard, and what does the data show**

Ammonia - **section needs a header**

"Ammonia is a critical component of the nitrogen cycle." Might want to tell us a little more about ammonia - sources (natural and anthropogenic) and importance in the nitrogen cycle. "At high

concentrations, ammonia is toxic to aquatic life, depending on instream pH and temperature levels. In general, higher temperature and pH levels increase the toxicity of ammonia. Virginia Water Quality Standards (9 VAC 25-260-140) list acute and chronic criteria for ammonia." **If these are numeric criteria it should be mentioned here, otherwise this chart has little meaning to the reader and the observations of high and highest values are empty.**

"Ammonia is also discussed in Section 3.5 (Toxic Pollutants INSERT -SURFACE WATER)." Note section 3.2.4 also titled Toxic Pollutants. **- Might want to recheck the extent of the discussion under this section.**

Nitrogen to Phosphorus ratios (N:P)
Since most of these points are well above 10, one might wonder what a phosphorus limiting system is and what it means.

Total Suspended Solids and Turbidity
Again what does the numbers mean and what is the criteria
Define FTU

3.4.4 Biomonitoring Data
Either explain the scores here or refer the reader to the section that explains it

3.4.5 Rapid Bioassessment Protocol - Habitat Data

This assessment, although subjective should have been conducted RECENTLY at every monitoring station by one trained team composed of 2 or more people evaluating the area. This data prior to 1993, is not very useful - except perhaps to say it is a long standing problem. These observational studies, although they are observing the physical conditions - would go along way towards explaining the benthic problem - especially given the conclusion that DO, temp, pH, nitrogen, phosphates, do not seem to be the source and the hypothesis was that excessive runoff of sediments was.

3.5 Toxic Pollutants - Surface Water
"chemicals which can cause acute and chronic toxicity effects...." **Change toxicity effects to adverse effects.**
Clarify last three sentences in paragraph - not clear what you are saying

3.6 Toxic Pollutants - Sediment

This section is even worse, it is not clear that the author knows what he is trying to say. Something can cause acute or chronic toxicity, toxic effects, or adverse effects - but the toxicity effects ? Briefly, explain to the reader what a PEC is, ER-M and ER-L are not just what they stand for. In the table several places state that the samples were below <ER-L or below detection limits. Is ER-L the detection limit?

3.7 Emory and Henry College Pollutant Study
Rewrite this section
Was this info in the bacterial report? I don't recall seeing it.
"The study identified testing pathogens..." **not clear**
" Study results did point to a potential nutrient and fecal coliform problem ...." **Your bacterial report points to a major fecal coliform problem, big enough to propose a 100 % reduction in most areas.**
"Though the study stated that additional data was necessary to conclude agriculture to be the source of microbial pollution, it also concluded this hypothesis to be likely." **Jesus, what sort of**

sentence is this?

"The study also tentatively concluded nutrient pollution from nitrates and phosphates to be related to agriculture in that their increased levels coincided with seasonal field fertilization." **This seems logical, but according to paragraph 1 only Fall (September, October, November of 2001) and Spring (March, April 2002) measurements were taken.**

3.8 Summary
"Based on the above analysis, it is hypothesized that excessive sedimentation from non-point source.." **change hypothesized to likely**

4.1.1 Agricultural Land
"primary source of sediment in the Beaver Creek watershed" **do you mean source of sediments to Beaver Creek? There are a few places in these documents where the two seem to be used interchangably**

"MRLC land use coverages for the Beaver Creek and reference watersheds are shown in Section 3." **Table 2.1 and Fig 2.2**

5.4 Explanation of Important Model Parameters
Note date of the MRLC land use coverage info and if any attempt was made to bring it up to date.

Table 6.1 **Title for Beaver Creek or in the Beaver Creek Watershed?**

6.2 Waste Load Allocation **(WLA)**
6.3 Load Allocation **(LA)**
"facilities are currently meeting their pollutant discharge limits and other permit requirements and because these loads were insignificant" **Maybe minor but according to 6.1 they represent 14.2% of the current load**

7.1 Reasonable Assurance
"ground truthing" **What is this?**

Norton,Nancy
From: CJewell@aol.com
Sent: Saturday, March 13, 2004 1:12 PM
To: Norton,Nancy
Cc: CJewell@aol.com
Subject: TMDL (Bacteria)
Dear Nancy Norton:
Below are some comments on the bacteria portion of the TMDL, when I copied it from the wp file, I lost the highlighted areas of the text, so it may be difficult to read. I made the comments as I read through the draft, so my overall impressions can be found at the end. If the comments are not clear, and further explaination is wanted, please contact me.

Thanks for the opportunity to comment,

Catherine Jewell
502 Lee Street
Bristol, VA 24201
276-466-5996
cjewell@aol.com

Comments on:
Total Maximum Daily Load (TMDL) Development for the Beaver Creek Watershed E. Coli (Bacteria) Impairment:

GENERAL: I am not a big fan of modeling, in most cases. I would rather the time have been spent on locating problem areas through testing and fixing them with proven methods (shown to work through studies) that are the most cost effective and practical and educating farmers and the rest of the public about the problem and ways they can help out

1.1.3 Watershed Location
" which represents 32.3% of the entire Beaver Creek waershed" to Watershed
* Also check miles affected in Public Notice (Jan 2004) it was stated as13.5 on page 2; 20.73 miles Description Route 611 bridge but river mile 36.00 on page 4; and as 13.46 miles Description as Route 611 bridge but river mile 28.73 on page

Under this section a general statement of the characteristics of Beaver creek and the watershed would be nice. For example the average Joe might want to know the acres of open water in the watershed; if it is or is not a source of drinking water for the area or used for irrigation, and if it receives waste from sewer treatment facility from either WA CO or City of Bristol or industrial sources, and storm water drainage. Also the feeder streams into Beaver Creek should be mentioned.

1.2.1 Designation of Uses (9 VAC 25-260-10)
*"Beaver Creek does not support the recreational (swimming) and aquatic life designated uses due to violations of the General Criteria and Fecal Coliform Bacteria Criteria." Indicate benthic as General (Benthic) Criteria unless other criterion was also impaired

1.2.2 Water Quality Standards
"Beaver Creek was listed impaired in 1998 and 2002 for non-compliance with the following fecal coliform bacteria criteria" This is not clear, it sounds like only 2 years it was found to be in non-compliance, please clarify.

A. General Requirements:
Through out this section do you mean colony forming units? Example: "In all surface waters,... the fecal coliform bacteria shall not exceed a geometric mean of 200 fecal coliform bacteria per 100 ml of water..." If appropriate, Change to 200 colony forming units (cfu) and elsewhere that it occurs - I don't know what the Administrative code actually states. Also may want to indicate CFU on chart page 1-4.

"Bacteria TMDLs were developed for Beaver Creek using the new criteria for fecal coliform bacteria and E. coli, as follows:" This statement should be clarified to indicate that Due to the testing period, TMDLs were developed using the old criteria for Fecal Coliform Bacteria (noted above) and the new criteria for E.Coli (noted below). Also something like the following statement if true. Enterococci is used as a marker for fecal coliform bacteria in saltwater and transition zones, and thus was not tested for in Beaver Creek .

2.1.3 Soils
Do not need "The following soil series descriptions are based on NRCS Official Soil Descriptions (1998-2002)." if only one series is described - but reference the source in the next sentence. Change: " They are located on nearly level to very steep uplands. Permeability is moderate. Slopes range from 0 to 60 percent." to something like - Permeability is moderate and slopes range from level to very steep uplands (from 0 to 60%)

I don't know much about soils but the soil type states "well drained" and above says permeability is moderate.

From this I am concluding that there is only one soil type in this watershed, VA003 which is in hydrologic soil group B. What is group B?

2.1.4 Climate
"the Abingdon 3S ... is located approximately 15 miles to the southwest" of what?

2.1.5 Land Use
Significant changes in land use have occured from the early 1990s, for example exit 10 to exit 5, highway extensions, farm lands into subdivision. I think this change may have an impact on the type of recommendations. If the only image available was the 1992 publication - then efforts should have been made to update the areas. Also the city of Bristol VA map is, juding by the shape, incorrect.

Table 2.1
Title of table and elsewhere need to specify VA only when referring to watershed. Also need to specify the date and source of information under the table

22,541 total acres vs 22,654 on p. 1-1
Table is messed up e.g.,
Read across from open water; pasture/ hay, row crops, quarries/transitional. Is water 819 acres or 42.9? Is pasture/hay 6,906 or 42.9 etc. recheck figures and percentages and change text were applicable.
The color index does not match up on the acrobat reader - I assume this is a problem with the imaging.

2.2 Stream Characterization
"Several mainstem ..." To mainstream

" This de-stabilization is likely caused by hydromodification of the stream channel..." Poor sentence - this destabilization is likely the result of modification of the stream channel from excessive runoff from stream banks and direct discharge from stormwater outflows.
.

3.1 TMDL Endpoint Determination - E. coli Bacteria
"Elevated levels of fecal coliform bacteria were recorded at
several water quality monitoring stations along Beaver Creek."
During what time period?
" The new fecal coliform bacteria.." Sentence is not clear I read 1-4, as the old criteria should not apply after " a minimum of 12 samples for E. coli
have been collected or after June 30, 2008, whichever comes first."
" As a result, the applicable endpoint is compliance with the recently adopted E. coli criteria. Virginia's Water Quality Standards" Not clear

3.2 Monitoring Stations
13 stations, 12 listed on table 3.1.Clarify "Three of these stations (6CBEV021.44, 6CBEV021.45, and 6CCLE002.89) were only monitored
in the 1970s (limited data) and were not included in this report." These stations are not in the table (but 6CBEV023.99 and 024.60 are and do not have data - I am thinking these were the renumbered ones) ALSO - check your numbering for these stations the last one 002.89 - may be a misprint.

Since there are only two biomonitoring stations, consider stating their location e.g., *"VADEQ maintains two biomonitoring stations on Beaver Creek. (6CBEV023.99 located downstream of Bristol Industrial Park at Rt. 625 and 6CBEV024.60 located upstream from the Industrial Park). - If this data was used to conclude that creek is impaired where is the data from them? It is not in the table.

*"Note that DEQ station 6CBEV021.07 referenced in the 2002 303(d)...." Check this statement with that shown on the chart and correct.

Table 3.1

6CBEV019.21 is this Beaverview drive? And is their a YMCA pool there?

6CBEV020.86 make corrections consistent with text - through out this report everytime I would see 15.27, I wondered if it was 8th street or Rt 11. Is the Sonic still there? If not use a better indicator.

BeavCrWQ6 recheck DEQ number

3.3.1 Assessment of Fecal Coliform Bacteria and E. coli Data

The public is probably more interested in the more recent data, so either separate it out to data collected say from 2001 to 2003. The historical data is nice and could indicate if there are changes, but probably not relevant to what exist at this point. Both stations with data from 1980 range from 0 to a very high number - it tells me nothing about current conditions.

"VADEQ at station 6CBEV015.27.." According to table 3.1 this could be State Street or Rt 11 at Sonic.

3.3.2 Bacteria Source Tracking (BST)

"VADEQ collected BST data at station 6CBEV015.27" Since this is an important monitoring site state where it is located.,e.g., State Street and 8th Street in Bristol

Not clear is ARA used to determine the likely source of bacteria from E C samples or all FC samples? If this test is important may want to state a bit about how it works and its accuracy - if relevant to the use of it in modeling. To me it looks like all 4 sources are impt but wildlife (ducks

and geese) are major contributors to THIS PARTICULAR MONITORING STATION

Table 3.3
*You could put location at top and remove redundant column for station.
*Use Fecal Coliform bacteria instead of "Fecal concentration" and drop "concentration" for e-coli. Since cfu is used here
*Entry for 9/5/02 is screwed up , recheck 10/23 and 11/21

4.1 Assessment of Nonpoint Sources

may want to indicate failing septic systems and leaking sewer

4.1.1 Septic Systems and Straight Pipes
"An estimated 4,050 people live in houses with a septic system or other means of sewage disposal (e.g. straight pipe) in.." This statement treats these two methods the same,

It would have been more accurate to check with BVUB to see where their services extend. Additionally, sewer lines should be considered here since much of the infrastructure in the older part of the town needs to be replaced. Example, I dug up my pipe a while back only to find there was only rust left. Also, where is the sewer treatment plant and how is their waste treated or disposed of - is there any contribution from this source.

4.12
Doesn't the aging process of manure destroy some of the fecal colliform bacteria? Also the assumption of 75% available for washoff, is based on what source? I could see this for losses in nitrogen and phosporus to ground water and surface water, but biological are susceptible to many methods of degradation.

If you use the tables, indicate on the bottom where the data was from.

4.1.3 Wildlife
"which live under the culverts in the City of Bristol (near the mouth of Beaver Creek)" Not Clear. Where not done, please indicate under these tables the source for the information.

4.1.4 Domestic Pets
Assuming this is to go into your modeling, Estimated domestic load cfu/dog/day would be

4.2 Assessment of Point Sources (or permitted point sources)
Need a conclusion for permitted point sources. Can you make the statement that the contribution of fecal colliform bacteria from these sources are very minor?

5.1.2 Computing Potential Evapotranspiration
"Daily minimum and maximum temperature between 1980 and 2002 at Abingdon 3 S gage were used..." I assume this time frame is used due to inclusion of data from 1980, As commented before the relevance of this data to what is going on now is in question. However, if included say from January 1, 1980 through December 31, 2002, if this is the period under consideration.

"orhographic variation in precipitation" Don't know what that is.

5.3.1 This section sounds like you assumed that the estimated 20% failing septic systems discharge their waste into the surface waters.

5.3.2 I do not know much about farming practices, but - "liquid manure" is this stuff sprayed on by hose - I just thought they shoveled the shit or dropped it with spreaders on the field. Also, doesn't the aging process decrease the bacteria present. Does this not state that 75% of the bacteria in the manure applied is available for run off and therefore into surface water - sounds

like a leap to me.

5.33 The grey bats are nice, but if they were not used in the model state it and leave it. Otherwise I don't believe their daily production rate was noted anywhere.

5.3.5 Not clear what the daily production rate for dogs is, probably should go into section 4.1.4

P. 5-20 "the difference between the highest fecal coliform observed values and the modeled peak concentrations is due to laboratory detection limits which cap the maximum reported concentration at either 8,000 cfu/100mL or 16,000 cfu/100mL, depending on when the samples were collected and which laboratory protocol was used." See text in 3.3.1 and above comments about this. Maximum detection limits need to be indicated under graphs and table. These sections should be consistent.

"Because of these maximum laboratory detection limits, the measured value of the sample may be significantly lower than the actual value." or .. the actual value may be higher than the maximum detection limit.

Figure 5.9 Water quality calibration at 6CBE015.27 on Beaver Creek 10/1/1996 to 30/1997 You are verifying this with 3 data points???

Figure 5.10 Water quality verification at 6CBEV015.27 on Beaver Creek 7/1/1995 to 7/30/1996 - You are verifying this with 2 data points??

5.7 Existing Loadings
close parenthesis -correct December ("January 1, 1980 through Decemeber 31, 2000)".

"Figure 5.8 shows the time series instantaneous and geometric mean concentrations of estimated E. coli using coliform ..." Is there a figure missing? Figure 5.8 shows error statistics

6.2 Wasteload Allocations
"There is currently one minor point source facility and the City of Bristol's MS4 permit in the Beaver Creek watershed (Table 4.8 and Figure 4.1)." Table 4.8 shows FCB production rates for wildlife.. There is no figure 4.1

"A private home is the only facility that is permitted to discharge fecal coliform bacteria. The Beaver Creek WLA equals 8.9E+8 cfu/year." Not clear what this is or if it is a tested amount or permitted amount or if it comes from the Rollins home.
What amount is contributed from the MS4 permit?

6.3 Load Allocations
"Allocation scenarios are presented with percent violations between 1/1/1990 and 12/31/1999 in Table 6.1." I can not make heads or tails out of this table where are the dates and violations and what do the numbers mean? Where is this from?

". The load allocation in this scenario includes a 100% reduction in cropland, pasture, and built up land-based sources in the watershed and an 85% reduction in forest land-based sources. In addition, a 100% reduction in direct deposition of E. coli bacteria from livestock, straight pipes, and pets, and an 85% reduction direct deposition of E. coli bacteria from wildllife. (wildlife)."

All this to arrive at that statement i.e., when we reduced the bacterial load to 0 for sources such as straight pipe , live stock, pets, cropland, pasture, built up and also reduce the bacterial load 85% for forest and wildlife - low and behold we would be in compliance 99 % of the time. .....

Now I really don't like models

7.2 TMDL Implementation Process
"This TMDL is the first step toward the expeditious attainment of water quality standards." Or Developing a TMDL for Bacteria is the first.....

7.3 Regulatory Framework

. "EPA outlines the minimum elements of an approvable implementation plan in its 1999." or EPA outlined the minimum criteria for an implementation plan....Don't know have not read it but sentence needs work.

"DEQ acknowledges that it may not be possible to meet the existing water quality standard because of the wildlife issue associated with a number of bacteria TMDLs (see section 7.4 below)." More like DEQ should acknowledge that the recommendations for meeting the existing water quality standard e.g.,. "The load allocation in this scenario includes a 100% reduction in cropland, pasture, and built up land-based sources in the watershed and an 85% reduction in forest land-based sources. In addition, a 100% reduction in direct deposition of E. coli bacteria from livestock, straight pipes, and pets, and an 85% reduction direct deposition of E. coli bacteria from wildllife. (wildlife)." Is 100% impractical, regardless of the wildlife contribution - study the problem -figure out the actual contributions and come up with a practical approach.

"wildlife issue associated with a number of bacteria TMDLs (see section 7.4 below)."
should be section 7.5.

7.5 Addressing Wildlife Contributions
"As is the case for Beaver Creek, TMDL allocation reductions of this magnitude are not realistic"
The whole modeling approach does not seem very realistic with respect to the biological components. There are too many hypotheticals and too many unknowns.

It looks to like a lot of time was spent trying to figure out data and estimates to put into some model (black box). Now it is in and presto this is what we get. I for one fail to see how the data from the cow watching study (Tables 4.2 and 4.3); the manure applied (assuming you even had accurate data on the concentration, transport and fate of the FCB in the crap and knew how much of it made it to the creek); and various other biological factors played into this modeling for the watershed or subwatershed. I for one don't believe in magic and fail to see how these or other considerations went into the model or why I should even believe it is at all representative of the real scenario. A more realistic approach would have been to examine the creek, tributaries, and buffer zones; gain an understanding of activities in the watershed and those that could have potential adverse effects; test the water from various areas; identify problem areas and then work on an implementation plan to reduce the major contributors (using tested and feasible methods). Nothing in this report showed me that DEQ has a good handle of the current sources for the bacteria impairment of Beaver Creek. The more recent data on table 3.2 suggest that bacteria concentrations tend to get higher as water runs from Sugar Hollow to State Street (based on the increase in % violations). BST data from one station showed that the bacteria is from wildlife, human, livestock and pets; the % contribution varies with each date; but that wildlife seems to be a major contributor; but then again I believe there are many ducks and geese near this station. No explanation was given for what specific trends (if any) were observed and its correlation with environmental conditions or agricultural practices.

April 8, 2004

Catherine Jewell
502 Lee Street
Bristol, Virginia 24201

Re: Beaver Creek Bacteria and Benthic Total Maximum Daily Load Draft Reports

Dear Catherine:

Thank you for your comments on the draft TMDL reports for Beaver Creek. Your comments were invaluable in cleaning up the draft report and providing further clarity for the potential readers of this document.

Many of your comments resulted in revisions to the draft report. Itemized lists of your comments and the responses offered by the consultant or by DEQ are attached.

The final draft document combines both the benthic and bacteria reports into one document. This provides a more holistic approach to the watershed study as well as removing unnecessary duplication of information. Once this combined document is finalized, it will be posted on the DEQ website at http:\\www.deq.state.va.us.
.
You may contact me at (272) 676-4807 or email ntnorton@deq.state.va.us. I appreciate your efforts to review the documents.

Sincerely,

Nancy T. Norton, P. E.
TMDL Coordinator-Southwest Regional Office

Enclosures